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EVALUATION OF CAPTURED DOCUMENTS

And

NAVIGATIONAL AIDS

By

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1. General

One of the most important sub-sections of Referat B (West) of the Chi-Stelle was the "Captured Documents and Navigational Aids" section, which had the following main tasks:

- a) Clarification of Allied navigational aids through the evaluation of captured documents and equipment;
- b) Directing the monitoring of the radar intercept stations;
- c) Instruction of the intercept station of the Signal Intelligence Service regarding information obtained from captured documents (frequencies, call-signs, codes, etc.);
- d) Examination of captured radio and navigational equipment, and informing signal intelligence units of the results of this examination.

The chief of this sub-section was a technical official (Inspector). Approximately four technical sergeants, four sergeants, 2-3 privates, and several Wacs were also engaged in this work. Close liaison with the Procurement Div-

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ision of the Luftwaffe (GL) was assured by the assignment to Referat "B" of an air engineer from the GL/Ru.

2. Monitoring and Clarification of Allied Navigational Aids, Airborne Search Receivers, and Recognition Devices.

a) Group Radio Beacons

The locations and frequencies, as well as the call-signs, were learned from captured documents. These beacons were continually monitored for the following reasons:

- aa) To assist our own jamming of these long-wave beacons, and to observe the effect of jamming operations;
- bb) In order to use the beacons as a navigational aid for our own flights. They were well adapted for this purpose.

b) "Splasher" Beacons (Cover-name "Orchesterassel").

After the arrival of the Eighth Air Force in Great Britian, the "Splasher" radio beacons were used almost exclusively by the Americans. The beacons did not operate continuously, but were turned on before missions. In order that the switching on of these beacons should not be the only indication of an impending mission, the "Splashers" were frequently put into operation at other times. Nevertheless, it could be said, in a negative sense, that no mission was to be expected if the "Splashers" were not operating. The "Splasher" beacons served as a navigational aid for the assembly of American heavy bomber formations of the VIII Bomber Command. They were also used by medium bomber formations of the IX Bomber Command, as well as by transport aircraft of the IX Troop Carrier Command. The beacons were continually monitored:

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- aa) In order to determine whether raids were intended or not;
- bb) In order to be able to recognize the approximate direction of impending operations from the locations of the beacons which were operating (for example, when the "Splashers" in northeastern England were operating, and those in southwestern England were not being used, the mission was considered to be in the area of the North Sea, Norway, Denmark and the Deutache Bucht. Conversely, when the "Splashers" in southwestern England were functioning, and not those in northeastern England, the operation was intended against northern France).
- cc) In order to advise units of the German Luftwaffe in the use of the "Splasher" as a navigational aid. The "Splashers" were well suited to this purpose. Since, however, the greater part of our own missions (for example, supply dropping flights to the Channel Islands from the middle of 1944 on) had to be flown at night, and since at this time the "Splashers" were usually not operating, it was seldom possible to make use of them.
- c) J-Beams (Cover-name "Rodelbahn")

Locations, frequencies, and recognition signals of the J-Beams were all learned from captured documents.

These directional beams were used primarily by the RAF Bomber Command as an aid for their bomb-runs and flights to the turning point.

Attempts were made to determine the direction of the beams by interception, in order to be able to predict the direction of a raid. This presented difficulties, owing to the narrow width of the beam. Results were most

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favorable when the beam was laid in the direction of an intercept station. Toward the end of the war several attempts were made to ascertain the direction of the beams with ferret aircraft. These missions were directed by the Radar Intercept Section at the Chi-Stelle; the results were insignificant because of the small number of sorties flown.

Even when the direction of the beam could be determined, it resulted only in a very general estimate of the target area--for example, Northern Germany or Southern Germany--since the width of the beam increased in proportion to the distance involved.

d) Circular Beacons

Details of the "SE" beacons, airfield beacons, "Eureka Beacons, etc. were learned from captured documents. Determining the radiation of these beacons presented such great difficulties, owing to their low signal strength, that it was not worth the trouble.

However, precise knowledge of this navigational aid assisted the work of the Signal Intelligence Service. For example, the occupation of airfields could be determined from the appearances of new airfield beacons.

e) Hyperbole Navigation (G-box)

The monitoring and jamming of the RAF's most important navigational aid, the Hyperbole System, was a science in itself, and fell within the scope of the Radar Intercept Control Center.

Collaboration on the part of Referat B consisted only of:

aa) First, general identification of the procedure;

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bb) Identification of new systems (e.g. "Long-Range), frequencies, etc., by an accurate study of all captured documents (especially Maps).

f) "Boomerang" Procedure

This was a bomb-run technique in which two ground-stations controlled one aircraft (usually a Pathfinder). One ground station vectored the aircraft onto the arc of a circle and kept it there, while the other gave the aircraft its distance to the target from time to time, and also the bomb-release signal.

Interception by the German Signal Intelligence Service could be done in two different ways:

- aa) By radar intercept on VHF (intercepting the impulses from the ground station);
- bb) By intercepting the radio traffic between the ground stations on HF.

After the erection of such ground stations on the Continent, the best results were obtained from monitoring the short wave W/T traffic. (See detailed report on IX Bomber Command).

"Boomerang" Procedure was used:

- aa) By the Pathfinders of 8 Bomber Group, RAF;
- bb) By the IX Bomber Command.

g) "GH" Procedure (Cover-name "Diskus")

This procedure differed from the "Boomerang" system in that not the ground station, but the aircraft, emitted the impulses. The advantage of

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this was that an indefinite number of aircraft could be handled at the same time.

The system was used by units of the VIII Bomber Command, 3 Bomber Group, RAF, and 2 Bomber Group of the British TAF.

Details of the results from intercepting can no longer be remembered.

h) Micro-B System (Cover-name "Schleuderball")

This procedure did not differ in principle from "Diskus", in that impulses were emitted by the aircraft and automatically re-transmitted by the ground stations. By calculating the time lag the aircraft could fix his position and go into an accurate bomb-run. This system differed from "Diskus" in that the impulse radiation was not emitted by a "Diskus" transmitter, but by the airborne search radar "H2X".

First knowledge of this procedure came from deciphered "bomber code" messages in which the formation leaders reported having released their bombs by "Micro-H". An immediate interrogation of prisoners brought quick clarification. The "Micro-H" system was only used by the VIII Bomber Command. Monitoring is discussed under "Meddo" (below).

i) "H 2S" or "Magic Box" (British airborne search radar; cover-name "Rotterdam", later Laubfrosch"; 9 cm. band.)

An airborne radar which made bomb-runs possible even in bad weather in that it permitted the recognition of landmarks such as lakes, towns, forests, etc. on a cathode ray tube.

The radiations were so easy to intercept and D/F that, for a long

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time, this became the most reliable method of plotting the routes of aircraft.

The RAF Bomber Command was equipped with the apparatus.

- k) H2X ("Mickey") (American airborne search radar; cover-name "Meddo"; 3 cm. band)

In principle the same apparatus as H2S. Owing to the substantially higher frequency, for the monitoring of which sufficient sets were not available, interception was difficult, but nevertheless brought very good results.

The aircraft of the VIII Bomber Command were equipped with this device. Aircraft of the IX Troop Carrier Command (especially their Pathfinders) were equipped with a similar apparatus.

- l) IFF (Airborne recognition device; cover-name "Flamme").

Reception by the aircraft of a signal radiated from a ground-station, and the retransmission of this impulse so that the ground station can distinguish between friendly and enemy aircraft.

The interception and D/F-ing of the impulses re-radiated by the aircraft were quite feasible.

The monitoring of these recognition devices was an excellent medium for advance warning of approaching RAF formations, and for tracking them.

To some extent a conclusion as to the type of formation approaching could be drawn from the channel used (6 channels were available).

As far as can be remembered, on several occasions a few captured IFF's were installed in German aircraft to mislead the Allied defense.

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m) ASV Apparatus (Cover-name "Eule")

The greatest successes of the British Air Force in its battle against the German submarines were made possible by the introduction of the ASV apparatus. It was an airborne radar which gave a visual presentation of shipping over a rather large area on a cathode ray tube. With this apparatus, naval reconnaissance aircraft could thoroughly reconnoiter the entire operational area of German submarines, and either give battle themselves or call in naval units which were standing by.

Interception of ASV radiations was only possible within a limited range. For this reason the Radar Intercept Service confined its monitoring to those ASV's operating over the channel. On the other hand, the Navy installed intercept receivers on board ships to duly plot approaching reconnaissance aircraft.

The naval reconnaissance aircraft of the RAF Coastal Command were equipped with ASV.

n) "Weapon" (Night fighter search radar; cover-name "Grille")

The night-fighter search apparatus, "Weapon", was an airborne radar for locating enemy aircraft on dark nights.

The "Weapon" apparatus was easily intercepted and D/F-ed. When German aircraft were being pursued by Allied night fighters, it was frequently possible to identify the search apparatus of an airborne night fighter by D/F-ing simultaneously the VHF R/T traffic and the "Weapon", and to continuously transmit to our own aircraft the position of the pursuing aircraft, even though

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there were little or no R/T traffic from the aircraft. (Pilots frequently received for instructions from the ground station with "OK", and refrained from making queries, in order not to be D/F-ed).

Bearings on the night-fighter search sets of the long range night fighter unit, 100 Group, were used to track the bomber formations.

Night fighters of the RAF Fighter Command, of the AEEF, and of 100 Group, RAF, were all equipped with the "Weapon" apparatus.

o) Night fighter Warning Device ("Monica")

The warning device, "Monica", was an airborne radar which revealed to aircraft of the RAF Bomber Command the approach of other aircraft. Distinction between friendly and enemy aircraft was not possible, and on that account RAF crews were not pleased with the apparatus.

Its radiations were capable of being intercepted and D/F-ed, and was used to track the routes of aircraft.

Most aircraft of the RAF Bomber Command were equipped with this apparatus.

p) Infra-red Recognition Devices

The use of such recognition devices for distinguishing friend from foe during night operations was learned from captured documents and statements of prisoners of war. Elaboration of these matters was not the concern of the Signal Intelligence Service, therefore the details are not known.

3. Evaluation of Captured Documents

As has been mentioned previously in a report on liaison between the Signal Intelligence Service and Dulag-Luft, all captured documents and

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equipment were evaluated in great detail. A preliminary evaluation of signal records (lists of call-signs and frequencies, log books, etc.) took place at the liaison headquarters of the Signal Intelligence Service in Oberursal (Dulag). The section heads of Referat B and of the regimental evaluation unit, respectively, were better able to perform a detailed analysis. In conformity with the building up of the Allied Air Forces, there was a section chief for each large unit, for example, the VIII Bomber Command, 9th Air Force, etc. These section chiefs reexamined the original captured documents and often found important information therein.

According to their importance, the results of the evaluation were either reported to the intercept stations by teletype, or incorporated in a comprehensive report which was issued approximately every week and called "Captured Documents Report". This report had a relatively wide distribution; in addition to the intercept and evaluation stations in the West and North, this report was also made available as information to the most important headquarters in the South, to other divisions of the Wehremacht, and to numerous SIS liaison officers.

4. Examination and Evaluation of Captured Radio Apparatus and Appliances

For the carefully planned work of the Signal Intelligence Service, an exact knowledge of the enemy's radio apparatus and special equipment was very important. It required a great deal of effort, however, to arrive at the point where the Signal Intelligence Service was given the right to evaluate captured material, because the examination and analysis of captured equipment lay within the province of other bureaus, such as the Luftwaffe Procurement Division (GL).

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Through the energetic endeavors of the Chief of Referat B, the following procedure was adopted in January, 1943:

- a) Each Signal Intelligence unit had the right to examine (not to remove) radio apparatus and signal documents from aircraft which had been shot down;
- b) Referat B of the Chi-Stelle had the right to salvage, examine, and use captured radio apparatus. Only equipment falling into our hands for the first time had, in every case, to be placed at the disposal of the GL.

Salvage units of the Luftwaffe Procurement Division had been assigned to the Luftgaue under the command of the Engineers. Very close liaison was maintained with those units.

In the case of the Luftgaue most important to the SIS (Holland and Belgium-North France), liaison was furthered by the good will displayed on both sides, and the salvage units aided the Signal Intelligence Service in the following manner:

- a) Immediate notification of enemy aircraft shot down, according to the following form:

Downed Aircraft No.	4589
Type	Thunderbolt
Damage	80%
Where shot down	Vicinity of Lille airfield
Date and time	30.1.44; 1450 hours
Pilot	Captured

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Squadron marking S 3  
Radio set Tr. 5043; destroyed

Crystals:

Transmitters: (A) 6530  
(B) 7180  
(C) 6940  
(D) 7110

Receiver: (A) 7020  
(B) 7610  
(C) 7430  
(D) 7680

- b) Notification when radio sets were captured in good condition, and a statement as to where they could be picked up.

Thus there were three possibilities offered to the Signal Intelligence Service for either taking possession of captured equipment or of examining it:

- a) A personal inspection of shot-down aircraft by members (officers or technicians) of the Signal Intelligence Service itself;
- b) Liaison with Dulag-Oberursel;
- c) Liaison with the salvage units.

With the abundance of material obtained from these three sources, it was possible to gain a good perspective of the radio equipment of individual Allied units, the result being that frequencies used could often be connected



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with tactical operations (for example, within the RAF Bomber Command only 5 and 8 Bomber Groups were equipped with VHF R/T sets. Therefore when VHF R/T bomber traffic appeared at night, it had to represent an operation on the part of one of these groups, even though until then the frequencies being used were unknown).

Radio sets in good condition, for example, HF transmitters, were used again, to a considerable extent, for our own communications. Radio sets 5043, when captured in good condition, were rebuilt with variable condensers and used for intercepting Allied VHF R/T traffic.

After the withdrawal from France in November 1944, the sub-section for evaluating captured material and navigational aids was taken away from Referat B and placed under the Räder Intercept Control Center (Potsdam-Eiche).

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**TOP SECRET**ORGANIZATION OF SEARCH COVER

By

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1. Experiences with regard to the identification of new traffic in the West may be summarized as follows:
  - a) Any systematic direction of signal intelligence must include sets on search, in addition to fixed cover, in order to investigate new traffic and determine changes in old traffic.
  - b) Only the best intercept operators, volunteering for this duty, should be used on search. Any compulsory transfer to search cover should be avoided. Success is only obtained with the effective co-operation of the radio operator.
  - c) The intercept operator must have all records of known and identified traffic so that he can determine immediately whether traffic he picks up is known or not.
  - d) Search operators are not allowed to skim over the frequency spectrum at random, but must cover specifically assigned frequency bands. The following is an example of the coverage of 4 W/T search receivers:

1st receiver - 500 -2000 kcs.

2nd receiver - 2000-3000 kcs.

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3rd receiver - 3000-5000 kcs.

4th receiver - over 5000 kcs.

- e) Both the search operators and their missions (the assigned frequency bands) should be changed as infrequently as possible. In this way each operator gradually becomes thoroughly acquainted with his band and notices changes immediately.
- f) Should an operator discover a new group of traffic, he must cover this network for several hours without regard to the appearance of other new traffic which, in such case, must be handled by other receivers. Only when a group of traffic has been covered for several hours is identification possible.
- g) An experienced evaluator should always be at the disposal of the search operators to keep them from remaining too long on an already identified network, to encourage the operators, and above all inform them when traffic they have picked up has a certain importance. The intercept operator is encouraged by seeing the result of his work.

2. Each company in the West had, for a long time, conducted its own search cover in a more or less systematic manner. However, beginning in the early part of 1944, the identification of new traffic and the employment of W/T search receivers was more rigidly directed by Referat B. This took the following form:

- a) The intercept companies which had fixed covers (such as RAF Bomber Command, etc.) were given instructions to report immediately by teletype to Referat B any new traffic picked up by chance. New traffic often appeared directly on or near the regularly covered frequency.

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- b) A number of search receivers were employed in accordance with the instructions of Referat B.
  - c) A number of receivers were used to further exploit newly found traffic which was still obscure.
3. Newly discovered traffic which had been picked up by the intercept companies or the above-mentioned search receivers was examined again by the evaluation sections. Much traffic was discarded as being a corrupt version of traffic already known. The remainder was monitored for another 2-3 days. In this way it was quickly discovered whether the traffic in question was bone fide tactical traffic, or a radio exercise or other type of training traffic. Important traffic, for example, that of new airfield radio stations of the Bomber Command, was immediately turned over to the company covering the unit in question. Unimportant traffic (training, etc) was filed away.
4. In this way a clear picture of the situation was maintained with a relatively small number of receivers, and the amount of completely unidentified traffic became less and less. The organization finally became so good that the appearance of important new radio stations, for example, transmitters at headquarters, was usually discovered and immediately reported by several out-stations simultaneously.

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SPECIAL SECURITY MONITORING MISSIONS

By

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The SIS was not ordinarily charged with the security monitoring of Luftwaffe radio traffic. However, on occasions, the Luftwaffe SIS would be called upon to use its resources to provide a signal intelligence picture of certain German units, thereby allowing the commanders of these units to check on the efficacy and security of their own radio and cryptographic procedures. These special monitoring missions did much to assure the Luftwaffe SIS of the confidence and co-operation of tactical headquarters, as the following example illustrates:

An SIS unit, newly transferred to Norway, monitored the radio traffic of certain Luftwaffe combat units for several weeks. The air commander in Norway was then presented with the organizational intelligence picture thus obtained, including chain of command, strength, equipment, and a synopsis of missions flown during the period. This demonstration was so convincing that the co-operation of tactical units and headquarters with SIS, especially in matters of signal communication, was assured over a long period.

The existence of an Allied Signal Intelligence Service was known to the German Command; even the fact that, toward the end of the war, special airborne

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interceptors were flying with 15th USAAF formations. This, coupled with the success enjoyed by the German SIS, called attention to the necessity for stricter radio discipline.

In monitoring the traffic of German units, the messages were both intercepted and evaluated. Violations in radio procedure were indicated, and methods for their correction suggested, thus reducing to a minimum the entry points available to the enemy for breaking into Luftwaffe radio traffic.

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**TOP SECRET**TRAINING

By

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1. In Peace-time

Since the Luftwaffe SIS in peace-time comprised only a few hundred salaried civil service employees, the individual underwent a long, thorough training before beginning his specialized activity. To accomplish this the civil service employees were first sent to fixed SIS stations of the Army, where they became familiar with the individual sections by practical training on radio receivers, as well as in evaluation. This preparatory training with the Army lasted for three full years. As the Luftwaffe acquired its own fixed intercept stations, the new employees, who first had to meet certain requirements, were employed on double-banking, until they could qualify as bone fide intercept operators. Under certain circumstances this was not the case; their employment as first-line operators was left to the judgement of the commanders of the intercept stations. The civil service employees were not generally subject to strict service regulations or control. The manpower shortage during the years just before the war was already so acute that even people who had little interest in their work, despite liberal pay, were reluctantly employed.

A second deficiency within the Luftwaffe SIS was that, in general, the personnel of the Chi-Stelle had received no special training for their work.

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Of course they had gone to the fixed SIS stations of the Army, but, owing to the exaggerated security regulations in the Signal Intelligence Service, had received no instruction in the work of the Army Chi-Stelle. Moreover, since an especially poor selection of personnel had been made in creating the Chi-Stelle, this error resulted in a long period of insignificance for this central station of the Luftwaffe SIS; this, in turn, proved detrimental to its general development. Only toward the end of the second year of the war did the Chi-Stelle gradually assume the role intended for it from the beginning. This was due, on the one hand, to the general successes of SIS, and on the other, to the capabilities of the military personnel which entered the Chi-Stelle and was entrusted with its work.

The most serious mistake made by the Luftwaffe SIS in its pre-war training program was that it failed to introduce military personnel into SIS soon enough; this was done by the Army, for example, as early as 1935. It was apparent from the outset that the civil service employees alone would not be sufficient in the event of war. Therefore, soldiers from radio platoons of Luftwaffe signal regiments were sent on temporary duty to the fixed SIS stations. However, the experience they gained could be all the less relied on because, after a short time they returned to their units again and there plunged into general military duties.

2. In War-time

When war broke out a host of new units were created with one fell stroke. In order to attain immediately some degree of efficiency, the small cadre of civil service employees had to be divided among these units. Thus they vanished amid the mass of completely inexperienced personnel. An especially

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paralyzing condition was caused by there being no officers available who were trained in, or familiar with, SIS affairs. The Luftwaffe Signal School in Halle was completely ignorant of the training required for an SIS officer. Therefore an SIS school was set up early in 1940, at first only within the sphere of W-Leit 3, but later to include the entire West. Here the newcomers, especially the officers, were trained to fill responsible posts within the Signal Intelligence Service. The SIS school, which in the middle of 1941 moved to the vicinity of Paris and was reorganized into the training company of the western regiment, was concerned at first with practical training. After the departure of the founder and the original instructors, more and more theory was forced into the training program. There was a digression from the original, clear training objective, which had been to provide instruction in practical SIS work, and with it a corresponding decrease in results. For all that, a succession of suitable officers, control chiefs, and evaluators emerged from this school.

Of course, the SIS school, and later the SIS training company, could not make up for the deficiency in general training in the case of the ever more numerous personnel. In part, the rapid development and enormous demand for personnel were to blame; secondly, the lack of qualified instructors. In the early years of the war the few experienced SIS officers, control chiefs, and evaluators could not be spared for training purposes, since their absence would have been immediately felt in operations. It was therefore general custom for unit commanders to be most unwilling even to send good radio operators and experienced evaluators to training courses, which were necessary for their promotion. A further difficulty in SIS training was the generally rapid

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expansion, which meant that certain experiences could only be gained and passed on to others in the course of operations. An example of this was the Radar Intercept Service which started in 1940/41, and reached its full development only toward the end of the war.

The real training generally took place within the units themselves. Here those who arrived in the early months of the war experienced by far the most difficulty, since the stock of information currently available was sketchy, and was not clearly channelized. Also, the civil service employees of that period, who saw in their knowledge the sole means of maintaining their privileged position over the military personnel, had no intention of sharing this knowledge. Later, as the work became more and more specialized and a great many assistants were needed, it was comparatively simple to work one's way up within a given section. In this case also it naturally depended very much on whether the superior were a responsible person. Thus, the large-scale functioning of the Signal Intelligence Service stemmed from little groups of people working together in fellowship, where a young talented officer, supported by a circle of capable assistants, would immediately put good ideas into action, in spite of all the objections from a command basically unfamiliar with SIS matters. These officers would also provide, within their own units, for the proper use and administration of available resources, and gave their men the opportunity of becoming familiar with the various branches of their section (for example, message center work, R/T evaluation together with the control and servicing of VHF platoons; W/T evaluation and operations of W/T companies. Particulary the more seasoned units, during the last years of the war, had a surprisingly versatile, experienced, and capable nucleus of

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personnel which was responsible for the increasing SIS successes, which continued right up to the end of the war. This situation was brought about by the High Command's strange policy of drawing intelligent German personnel from all over the Luftwaffe and concentrating them entirely within the Signal Intelligence Service.

3. General Directives

Detailed training should follow the lines of actual experience and not inflexible regulations. Any theory which does not conform to practice should be abandoned. Thus, for example, it is unnecessary for an intercept operator to learn the technical details of his radio set, when a radio repair sergeant is assigned to each SIS platoon to service the receivers. It is better, instead, to allow him to participate in the evaluation of traffic intercepted by him, and thus arouse his interest. In retrospect, the following directives are listed, and are only a general outline of the methods used by the most able commanders to improve the state of training of their personnel:

a) For the W/T Intercept Operator

A certain technical interest and an inborn talent for radio were necessary for a career as an intercept operator. To be employed in peace-time he had to have a code speed of 20-25 words a minute. His specialized training followed after a basic, fundamental training as a regular W/T operator. He was also instructed in:

aa) The various kinds of radio traffic (point-to-point, air-to-ground, bomber, reconnaissance, ground support, Army, Navy, interstate and intra-state traffic);

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- bb) The different radio characteristic (call-signs, frequencies) of individual countries, and the form of messages, message preambles, and codes;
- cc) In the procedure signals (Q-groups, X-groups, Z-groups, etc.);
- dd) In navigational aids (radio beacons, etc.).

b) For the R/T Intercept Operator

Requirements for an efficient R/T operator were an adequate knowledge of languages, a certain mental agility, quick perceptive faculties, the ability to correlate circumstances, a knowledge of both German and the enemy fighter arms and the tactical changes occurring in both, knowledge of fighter cover problems, and the operations of long-range bombers; also a general insight into R/T evaluation. The work of an R/T operator often brought very remarkable surprises. For example, students who spoke a most inadequate English often obtained excellent results, while people who had boasted of living abroad for many years, and of having really mastered the languages, were a complete failure on a radio receiver.

c) For the D/F Operator

In addition to general training as a W/T intercept operator and an understanding of the equipment involved, an inborn aptitude for D/F and D/F control was required.

d) For the Radar Intercept Operators

A requisite for their efficiency was an introduction to German radar technique and navigational aids. In this way they received a foundation for locating and monitoring enemy airborne radar and navigational aids. In addition, all new intelligence, such as changes in the frequency bands of enemy

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radar, obtained from the evaluation of radar intercept, were communicated to them; they were also informed of improvements in radar technique in other theatres of war, as well as the latest general development in electronics technique on the part of the enemy. Their training also included the setting-up of direction-finders, interpretation of the different visual presentations on a cathode ray tube, recognition and identification of jamming transmitters, etc.

e) For Log Analysts, Traffic Analysts and D/F Evaluators

They had to possess a more profound knowledge of radio characteristics and radio procedure signals than that prescribed for the intercept operators, and they had to be thoroughly familiar with the organization of the Luftwaffe. They had to be proficient in map reading, and to be familiar with the chain of command and radio transmission methods of individual units; to be able to evaluate D/F bearings and to check them with intelligence obtained from traffic and log analysis. They produced a geographical traffic diagram for the "war room" and compiled the daily technical summaries in the evaluation section.

f) For the Cryptanalysts

They had to have a thorough mastery of the language involved, especially of military terminology; to know the enemy's organization and his methods of operation. They were responsible for the preparation of the daily operational report.

g) For the Radar Intercept Evaluators

Besides a general knowledge of the enemy air force, they had to give their chief attention to the tactical employment of radar monitoring results,

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and to forming an appreciation of the capabilities of the enemy radar organization. It was their duty to make proposals for the jamming of enemy radar, and to compile tactical and technical reports, based on the results of radar intercept.

h) For the Final Evaluator

He must undergo a comprehensive and thorough training, be equally at home in each special department, and be able to fill in, in a case of emergency. He must also have a good general knowledge of the country in question, and be familiar with its military organization. His work also required a good knowledge of enemy operations, experience in appreciating the enemy situation, and changes in it, as seen through the eyes of signal intelligence; experience in the realm of radar and navigational aids, the enemy's radar organization, and the continual reading of other sources of intelligence such as press reports, radio broadcasts, and agent's reports. If he wished to perform his task satisfactorily, he had also to be well posted on German means of signal communication, on the compilation of messages, reports, special reports, and estimates of the situation. With this background he could lend emphasis to his reports by adding maps and dexterous, graphic descriptions.

1) For the SIS Officer

He was not required to perform any highly specialized function, but had to be thoroughly familiar with the work of the unit or section entrusted to him, even down to details, and to demonstrate this by his collaboration. Familiarization with the various specialties was indispensable to his training, and for this purpose he served profitable tours of duty with the individual

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out-stations. In addition to a comprehensive knowledge of SIS matters, he had to meet military requirements, and know how to represent his service at tactical headquarters in a faultless military manner; above all to be an intelligent and considerate superior toward his men, so that they would feel secure, not only in matters pertaining to their work, but in their personal interests as well.

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WOMEN AUXILIARIES

By

Technical Sergeant Karl Jering  
Chi\*Stelle, Luftwaffe SIS.

As early as several years before the war the civilian passive air defense organization began to employ volunteer women auxiliaries in its filter centers. At that time this organization was still being kept very secret. For the sake of security only volunteers from the families of officers, and the upper classes, were accepted. In 1940 the Army began to recruit women applicants for its fixed message centers within Germany proper. These girls were organized into units, trained, and put into uniform.

In the beginning of 1941 the Luftwaffe began to employ women auxiliaries in its message centers in the western occupied areas, as well as in those within Germany. The Signal Intelligence Service, much to its detriment, at first declined to employ women for security reasons. Later, owing to the increasingly strict regulations for economy in the use of men fit for combat duty, SIS also, to an even greater extent, found itself falling back on the reserve of women workers from which the cream had already been taken. Now it suffered for its lack of foresight. In the beginning, the labor bureaus were still able to furnish women versed in languages, who had a good, average education, who came from homes, schools, and professions, and who might even be employed in evaluation work. Now, however, the wider demand for female radio,

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teletype, and telephone operators had to be met largely from the existing supply of unskilled women and domestic servants, because the educated girls were either already in the Armed Forces, or were employed in defense industries. Especially detrimental was an order from the leader of the German Students Party that women who had passed their final examinations, female high-school students, and female artists, had to perform heavy manual labor, and therefore had to be employed in defense industries. Even Gauleiters were powerless to free these girls for positions more commensurate with their training. Moreover, within the Wehrmacht, it was forbidden until 1945 to employ women auxiliaries in offices, administrative bureaus, post exchanges, kitchens, etc.

A cadre of women auxiliaries came into SIS in the beginning of 1943 from the Luftwaffe signal schools and various other military posts. They were employed as intercept operators, radio operators, telephone operators, teletype operators, draftsmen, and evaluators. They had previously received a thorough training, and at the start worked under more favorable conditions than did the soldiers, proving themselves very useful. In the latter years of the war, as the general calibre of the women declined, owing to mass conscription, and training became more and more sketchy, these first auxiliaries formed an especially reliable nucleus. It was only military conceit which declined to accept, in principle, the use of women in telephone exchanges, radio stations, teletype exchanges, and in offices of the Wehrmacht, since they had been employed for years by civil organizations, such as the German Post Office, with excellent results.

The SIS women auxiliaries wore uniforms when serving outside of Germany, but within the Reich they wore civilian clothes. They were provided with their

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own private billets, into which soldiers were not allowed to enter. Their interests were represented by a woman commander who was charged with their supervision. In general they were not bothered with military formalities; they had only to attend the monthly lecture on security. Of course, the continually deteriorating military position of Germany soon brought an end to the free and easy working conditions previously enjoyed by them, and in the last hectic months of the war the Command lost all sense of feeling and consideration for the "fair sex".

The efficiency of a woman, even more so than that of a man, depends on employing her in the proper capacity. Therefore, the officer who was in charge of woman working in a telephone exchange, radio room, or message center, had this particular responsibility. Many times it worked out very favorably to remove the old radio and teletype teams, who had had no relief from this nerve-wracking work since the start of the war, and to replace them with girls. The best results with women auxiliaries were obtained by using them as W/T operators. Some of them even proved to be good R/T intercept operators, although general employment of women in this field was never realized, owing to the sudden end of the war.

The work of the women in telephone and teletype exchanges was considered equally good. In evaluation they were used primarily for compilation and other work of a clerical nature. It would have been a disgrace, in the fifth year of war, to allow a healthy man to run a card index, while men wounded eight and ten times were being sent back to the front. Women performed detailed work much more precisely and conscientiously than did the male soldiers. Within the narrow confines of their particular sections, some of them even sur-

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passed their male fellow-workers in perspicacity and judgement. Thus, for example, a woman was responsible for solving the question of "delivery groups", after the soldiers who were working on this problem had already abandoned their efforts. As the war neared its end, and working conditions, as well as the sleepless nights, became more and more grim for the women, their health began to deteriorate. However, no notice was taken of this; on the contrary, toward the end of 1944 the Flak Corps began to employ them in searchlight and radar units. The poor creatures - most of them were girls of the Reich Labor Service who had completed their years service and should have been discharged - were not only trained in the technical aspect of their work, but were also made to drill, and fire pistols. The instructors came from the Flak Corps. Very few of the young girls could endure these hardships without suffering injury to their health. Fortunately, those criminals who carried out such insane orders were the first to betake themselves to safety when danger threatened, thereby naturally leaving the girls to their own fate.

Shortly before the final collapse, the Luftwaffe simply discharged its women auxiliaries. Since the German railroad service had been paralyzed by the enemy air forces, and the enemy was driving deeper and deeper into Germany on all sides, the majority of the women auxiliaries whose native towns were occupied by the enemy, and whose property had been engulfed in the ruins of gutted German cities, sought refuge with farmers in the rural districts of the Alpine provinces. The defeat of Germany affected the women almost more than it did the German men.

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LIAISON BETWEEN THE SIS

AND

LUFTWAFFE HEADQUARTERS

By

Lieut. Martin Ludwig,  
Chi-Stelle, Luftwaffe SIS.

1. General

The following sections of Luftwaffe Headquarters were directly interested in the results of signal intelligence.

Assistant Chief of Staff. A-2

This section was most pertinently concerned with all signal intelligence, and received all SIS reports.

Chief Signal Officer.

Although the office of the Chief Signal Officer represented the highest administrative authority over the Luftwaffe SIS, it was only to a slight degree interested in intelligence results. These interests were confined almost solely to signal equipment and techniques, such as navigational procedure, radio equipment, and Allied radio procedure.

Chief Weather Officer

This section received all SIS reports bearing upon weather intelligence.

SIS reports were passed directly by the Referate of the Chi-Stelle to the above-named sections of the Luftwaffe Staff. Toward the end of the war, when all the Referate had taken to the field, and were no longer installed in

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Potsdam, the Chi-Stelle, as the central SIS bureau, sought to interpolate itself into the liaison picture by creating a small SIS clearing house for reports from the Referate to Luftwaffe Headquarters. This attempt met with little success since the final recipients of the reports considered the consequent delay entirely unnecessary, and accordingly opposed the plan.

The question of the Signal Intelligence Service's being subordinated to the Chief Signal Officer had often been debated, since its subordination to the A-2, as the agency most interested in the results of its work, seemed obvious. After the Chief Signal Officer had originally received the commission of creating a signal intelligence service, he quite understandably did not wish to relinquish his hold on this important organization. The arguments in favor of each alternative were as follows:

For Control by the Chief Signal Officer

The main advantage in being subordinated to the Chief Signal Officer was the increased facility with which signal communication could be provided, and radio equipment allocated. There is no doubt that the excellent communication system possessed by the SIS to the very end, and the correspondingly good equipment which it had (receivers, D/F's, etc.), were the result of signal control.

Subordination of the SIS to the Chief Signal Officer was also intended to achieve a close liaison between signal intelligence and signal security, in order to profit from mistakes made by the enemy. This concept failed of realization, since in spite of the accurate knowledge of Allied mistakes in the field of radio and cryptographic procedure, as revealed by the work of the SIS, delinquencies of the same nature were either not corrected at all, or only

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partially so, by the Germans. There was an apparent lack of a qualified expert who might have evaluated the results of the SIS with the end in view of improving the security of Luftwaffe radio communication.

For Control by the A-2

The subordination of the SIS to the A-2 would have placed all intelligence agencies under a single control. It can be regarded as certain that results would have been better, and that co-operation between the various intelligence agencies, which was finally effected only at a very late date, would have occurred earlier, and been more intimate.

The Chi-Stelle, unlike the SIS regiments in the various theatres of war, was saddled with a three-fold division of control. The Chief Signal Officer was regarded as the supreme authority on all technical signal matters, while guidance of the intelligence activities of the Chi-Stelle was exercised by the A-2. The third source of control was a purely administrative one, and, in the case of an individual Referat, was represented in the person of a company commander, who was in no way concerned with technical or intelligence operations. Much friction resulted from this complicated system. It was especially difficult for men of the lower enlisted grades to make their way in this labyrinth. Since the company commanders were usually completely ignorant of SIS affairs, though conscientious in matters relating to promotion and discipline, they preferred those men who drilled willingly, usually overhead personnel (office, kitchen, ordnance, etc.). On the other hand, they were unsympathetic toward SIS specialists as such, who were usually their mental superiors.

The Chief Signal Officer, who might have been able to exercise influence over this situation, in turn showed a preference for good signal technicians



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(radio, teletype and telephone operators, etc.), and remained apathetic toward the purely intelligence types of personnel.

The A-2 exercised no influence on the treatment accorded key personnel devoted to the work in which he was interested. Even though in the course of the war, time brought a certain improvement in the internal situation of the Chi-Stelle, nevertheless this amelioration could in no way be ascribed to any constructive interference by A-2.

## II. Liaison in Practice

In spite of this complicated organization, liaison between the real specialist personnel of the Chi-Stelle, and the A-2 section, was, for the most part, quite good. It is understandable that the significance of signal intelligence was not always immediately recognized, and that, particularly in the beginning, many doubts arose as to its reliability. In part, the difficulty lay in the fact that reports were written in SIS parlance (call-signs, frequencies, etc.), the A-2 being left to draw his own conclusions. Gradually, however, the evaluators learned to transform signal intelligence into an operational intelligence picture.

After the evaluators had become imbued with tactical concepts, they sometimes turned to the other extreme, wishing to perform the A-2 function themselves, and arbitrarily mixing signal intelligence with intelligence from other sources, such as press reports, prisoner of war statements, etc. Only in the course of time was the happy medium found.

To strengthen liaison, an SIS liaison officer was assigned to the A-2 section of the Luftwaffe General Staff in 1942. As good as this idea was,

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so was equally unfortunate the choice of the officer to fill this post. He was a young, enthusiastic fellow, well indoctrinated with drill regulations, but possessing very little SIS experience. Unfortunately he became no more adept with time, had but slight tactical knowledge, and, in brief, did more harm than good. Although the specialist personnel of the Chi-Stelle became immediately aware of his deficiencies, nevertheless more than a year elapsed before a change took place. An evaluator of Referat B, who, like most of his fellow workers, was a sergeant, was appointed as his successor. This case illustrates in most crass form the personnel policy of the Chief Signal Officer; a sergeant is sent as liaison officer to the highest German air headquarters because a first lieutenant is incapable, and a more suitable officer can not be found.

The duties of liaison officer consisted of:

- a) Passing on SIS reports to the A-2 sub-sections, whom he often had to instruct in the significance of individual bits of intelligence;
- b) Maintaining a current situation map based on SIS reports;
- c) Regular contact by telephone with the section heads of the Chi-Stelle, who kept him informed of problems which were still unsolved, and therefore not ready for an official report;
- d) Forwarding to the Chi-Stelle all important intelligence from other sources which might be of assistance to the SIS;
- e) Advising the Chi-Stelle of the wishes and suggestions of the General Staff; for example, "Monitoring of the RAF Coastal Command can be reduced; on the other hand, more information on transport units is desired."

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III. Utilization of Signal Intelligence by the A-2 Section

Only in rare cases could the manner in which signal intelligence was employed by the High Command be determined. In the beginning, there was a definite tendency to dress up unfavorable SIS reports. Two instances of this, occurring in 1941, are still remembered:

- a) There were definite indications from radio traffic of the construction of a flying route through central Africa from Accra, via Fort Lamy - El Geneina - Khartoum to Egypt, over which the British were ferrying American aircraft. ETA and ETD messages of the following type were continually intercepted:

Fort Lamy to El Geneina:

48 dep 0915 plus T4811, T4813, T4798 less R7198 - 0917.

(Explanation): Convoy 48 departed at 0915 hours, plus aircraft T4811, T4813, T4798. Aircraft R7198 remained behind. Time of origin of message, 0917 hours.

From these messages were determined many details concerning the routes, time of flights, losses and repairs of aircraft, and, above all, the strength of the ferry convoys. Although all figures were made available to the A-2, and it was apparent that the average strength of a convoy was 6-8 aircraft, the A-2 based his figures for the total number of aircraft ferried on an average of 3-4 aircraft per convoy, and only much later accepted the figures submitted by the SIS.

- b) The SIS ascertained that after Malta had successfully weathered its crisis, there were again six fighter squadrons based on the island. The A-2 had estimated three fighter squadrons, and could not be budged from this

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contention. After repeated remonstrances on the part of SIS, one of the sub-section heads explained: "The lieutenant-colonel has decided that there are only three squadrons based there; therefore I can do nothing to change it."

In the course of time, especially after the advent of an SIS liaison officer, such occurrences became less frequent. If during 1941-1942 there still existed a tendency to reduce strength figures as rendered by the SIS, later these figures were not only accepted by the A-2, but raised 10-30 percent. For example, from 1944 on, the A-2 estimated the strength of a fighter squadron of the Ninth Air Force at thirty aircraft, while the SIS determined that the operational strength of these squadrons was an average of twelve, and, at the most, sixteen aircraft, and that therefore the overall strength, including reserve aircraft, was probably no more than twenty-five.

From 1943 on, all intelligence, even that of an unpropitious nature, was truthfully expressed in the air situation reports of the A-2 section, which were disseminated to all high headquarters, as well as to the Reichsmarschall. Nevertheless, it could not be determined that the intelligence supplied resulted in any decisive German counter-measures. This sense of working to no purpose had an exceptionally depressing effect on the SIS people, who had no illusions as to the true conditions.

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LIAISON BETWEEN DULAG LUFT (PW TRANSIT CAMP) AT  
OBERURSEL AND THE LUFTWAFFE SIS

By

Lieut. Martin Ludwig  
Chi-Stelle, Luftwaffe SIS.

1. General

During the course of the war signal intelligence, plus prisoner of war interrogation, and the evaluation of captured documents and equipment, came to be the two most important sources of information on the Allied Air Forces available to the German Command. Both sources complemented each other and brought about ever-increasing successes.

Signal intelligence was superior in the following:

Flight path tracking (immediate evaluation);

Speedy observation of changes in enemy order of battle (organization, strength, etc.);

Prompt recognition of enemy offensive intentions and the building up of concentration and strong points;

Reconnaissance, ferry, and other flights or sorties in far-reaching areas, for example, the South Atlantic.

PW Interrogation excelled in the following fields:

Determining the numerical designation of units (squadron number, etc.);

Ascertaining details of enemy equipment;

Noting changes in enemy tactics, e.g., flight formations of the 8th AF, etc.

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In order to assure co-operation between the signal intelligence service and Dulag Luft, the following was put into effect:

- a) A special SIS liaison team from Referat B and C of the Chi-Stelle was stationed at Oberursel. This team consisted of:

One officer in charge.

Three NCO's.

One enlisted man.

One woman auxiliary.

- b) Direct telephone connections.  
c) Complete exchange of all information.

2. Prisoner of War Intelligence

When the prisoners reached Dulag Luft, it was possible to identify their unit by their statements, or in some cases by the markings on the wrecked aircraft. If the prisoners did not belong to units that were well known, as for instance the VIII Bomber Command, the following telephone conversation would take place between the SIS team in Oberursel and Referat B:

Dulag Luft:

Today a pilot of the 352nd Group, VIII Fighter Command arrived here. He was shot down on 8 December 1944 at approximately 1315 hours near Coblenz. Have you any additional information? Have you any questions?

Referat B:

This group was flying fighter protection at that time for a Marauder formation of the IX Bomber Command. The prisoner's ship may have had the call-sign "Falcon Red 2". At 1312 hours a pilot of this group with this call-sign

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was heard to say: "I've been hit pretty bad by flak and am bailing out."

Another pilot, "Falcon blue leader" was shot down, but this took place at 1309 hours. We have the following questions:

- a) According to radio intercept the 352nd Group was transferred a few days from the 8th AF to the 9th AF, and moved to France. Where is the group located? (Approximate bearing Rheims).
- b) Is this group used only as fighter protection for the 9th Bomber Command, or is it also intended for ground support?
- c) Is the group assigned to the 9th AF on a permanent or temporary basis?

By means of this intelligence the interrogating officer could meet the prisoner on a common plane of understanding of events.

While in many cases prisoner of war intelligence brought confirmation of the data gathered by SIS, and interrogations were thereby facilitated, there were also cases in which the clarification of signal intelligence problems were possible only from prisoner of war interrogation.

Example:

- a) Different groups of the VIII Fighter Command appeared using six squadron call-signs instead of the usual three. It was not possible for SIS to know whether these groups had been reinforced to double strength, or if the groups were assigned special missions, the squadrons divided, and given different call-signs. PW interrogation revealed that the latter hypothesis was correct.
- b) At the start of the invasion several RAF fighter squadrons were heard, which, judging by the frequencies used, belonged to neither the RAF

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Fighter Command ~~not~~ to the 83 or 84 Groups of the TAF. These particular call-signs were known to the SIS team at Oberursel. During interrogation one of these call-signs was mentioned by a captured pilot. Upon further questioning, it was determined that the pilot was not from 11 Fighter Group, as he professed to be, but from a newly formed 85 Fighter Group. At the same time it was also learned that 85 Group was the fighter defense unit of the 2nd British TAF.

In these two cases PW intelligence provided the answer to current signal intelligence questions as well as clarifying certain tactical problems.

Co-operation could not always be effected in this ideal manner as many times the heavy operations of day and night fighters resulted in large numbers of prisoners. These prisoners were then screened so quickly at Dulag Luft, that the suggestions of SIS could not be adopted. In some cases the lack of acquaintance with particular situations on the part of the interrogating officers, who were changed too often, accounted for important intelligence not being obtained. On the whole, it can be said that a will to co-operate existed on both sides, and that noteworthy results were achieved.

### 3. Evaluation of Captured Material

SIS derived great benefits from the evaluation of captured material. All documents salvaged from Allied aircraft which had been shot down, crashed, or made emergency landings, were passed on directly to Dulag Luft by the salvaging unit (usually an air base headquarters). As long as communications within Germany remained relatively unimpaired (until the fall of 1944), captured material

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reached Dulag comparatively quickly. There it was assorted according to topic, and all documents pertaining to radio or radio navigation placed immediately at the disposal of the SIS liaison team. This team had on hand all lists of frequencies, call-signs, Q-groups, etc., and determined whether the captured documents contained any new intelligence, such as the call-signs and frequency of a newly occupied airfield. Any such new discoveries were immediately telephoned to Referat B. Later, the originals of all captured documents were sent to Referat B for detailed examination.

A package of captured material, weighing 5-10 kilograms, arrived on the average of once a day. It contained chiefly the following types of documents and material:

- Lists of W/T frequencies and call-signs;
- Complete lists of airfields in Great Britain, together with their call-signs and frequencies (found principally in 8th AF aircraft);
- Lists of Q-groups with the latest supplements;
- Note books with important entries;
- Lists of R/T call-signs, both HF and VHF;
- Bomber codes, and other air force codes;
- Radio sets and crystals;
- Maps giving indications of course, and hyperbole charts.

Dissemination within SIS of the intelligence from captured material was assured through direct contact between the SIS team at Oberursel and the intercept stations, or through the auspices of Referat B.

Since the end of 1943, in addition to the procedure described above, an agreement had been reached whereby all SIS officers and technicians were

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permitted to examine the shot-down aircraft themselves for documents of interest to the Signal Intelligence Service. When, therefore, aircraft were shot down in the vicinity of SIS stations, captured material could be evaluated on the spot, with a minimum of lost time.

Special pains were taken to insure the recovery and prompt evaluation of bomber codes, which remained in effect for only 24 hours. The result was that aircraft shot down during an RAF night attack were examined at the break of day, and the bomber code, which still remained in effect for the duration of that day, was already in German hands before the beginning of the 8th Air Force daylight raid. The only difficulty was getting this code in time from the salvage point to where it could be of operational use. At the suggestion of SIS, therefore, the Luftwaffe General Staff issued an order, hundreds of copies of which were distributed to airfield and flak units, that bomber codes should be salvaged with all possible speed, and the first six pages (encoding section) sent with the highest operational priority to the 1st Co. of SIS Battalion 357 (Bomber Meldekopf) by the nearest teletype station. Salvage units which processed these codes within a specified time received praise and commendation. There were an average of 8-10 occasions of this sort a month, which greatly expedited the deciphering of messages.

The evaluation of captured radio sets and crystals was accomplished by direct co-operation between the salvage units and SIS, and is discussed in another article.

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CO-OPERATION BETWEEN THE LUFTWAFFE SIS

AND

THE WEATHER SERVICE

By

Lieut. Martin Ludwig,  
Chi-Stelle, Luftwaffe SIS

Actual weather reports, and hints as to probable weather, occurring in Allied radio traffic were of great value to the Luftwaffe Weather Service, especially in the latter stage of the war, when Allied air superiority greatly impeded German weather reconnaissance.

Two types of weather intelligence were to be found in Allied radio traffic:

1. Actual weather reports (both cipher and plain text) to be found in the radio networks of the Allied Weather Service.
2. Opportune hints as to weather to be found in practically all other radio traffic, for example:
  - a) Fighter R/T traffic: difficulties in formation flying owing to poor visibility; numerous requests for assistance in homing, owing to the weather situation, etc.
  - b) Bomber R/T and W/T traffic: same as above; also diversion to alternate airfields owing to weather conditions; difficulties of Eighth Air Force formations in assembling, etc.
  - c) Complete radio silence on the part of certain airfields, or in certain areas; breaking off of training flights; a minimum amount of traffic from

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transport units; many requests for weather over airfields.

- d) Enciphered Bomber code, or Syko messages.
- e) Unusually brisk navigational traffic from aircraft flying the Atlantic from America to Great Britain (the monitoring of this traffic yielded a great many hints as to weather).
- f) Air support radio traffic (tentacle or ASP networks): rejection of requests for air support, together with indications of the weather situation at the airfields of the tactical aviation units.

Actual weather traffic was monitored by a special radio intercept station of the Weather Service, located near Potsdam. There the decoding of weather messages was also accomplished. It is known that in the beginning of 1944, this intercept station was especially interested in these frequencies on which appeared messages with the indicator "Whist".

Such weather networks were only monitored by the Luftwaffe SIS if they were of tactical significance (for example, to recognize concentration in deployment of forces).

Indications of weather, occurring in general radio traffic, were passed by the SIS intercept stations to the Weather Service by the most direct means. Once such information had been passed by the SIS to the nearest weather station (for example, that of a Jagddivision), its further dissemination was entirely the responsibility of the Weather Service.

The number of such intimations of weather intercepted was very great. As an example, SIS Battalion 355 in Norway reported an average of 300 weather clues a month to Luftflotte 5. Even a greater number was passed to Luftflotte 3 by intercept stations of the SIS Regiment, West.

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To assure close co-operation between the SIS and the Weather Service, the latter assigned a liaison officer (a technical sergeant) to Referat B. This sergeant regularly visited the SIS intercept stations, instructed them in the significance of weather messages, and adjusted any difficulties which had arisen. He had to report to the Chief Weather Officer all known weather frequencies which were not being monitored by the SIS, and likewise to pass on all weather intelligence obtained from the analysis of captured signal documents.

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COMPARISON OF THE ARMY, NAVY AND LUFTWAFFE SIS

By

Major Ferdinand Feichtner  
C.O., 352nd Regiment (South)  
Luftwaffe SIS.

1. The Army SIS

The Army SIS reached its peak about 1938, and from that time on there was a noticeable lack of progress. In my opinion, and I have often given voice to this feeling, it was due to the following causes:

a) The first expansion was too violent. The cream of the original intercept operators was spread much too thin among the later-established companies, and they were swallowed up in the mass. Some of these men did not have the knack of attracting attention to themselves, others did not become prominent for other reasons. The headquarters, at least in the case of the SIS companies, relied on immature and inexperienced officers, who had no technical signal training. The same thing can be said of the non-commissioned officers.

b) The small number of SIS trained personnel, which for the most part had retired into evaluation work, clung to its peace-time standards and contended itself with the production of statistics and obsolete reports. New proposals from the troops were only given slight consideration, and the impression was created that everyone was resting on his previously-earned laurels. From time to time sparks of initiative could be seen, mostly in the case of units commanded by SIS trained officers. It is a known fact that an SIS background can not be acquired by academic study, but only through practical experience over a definite period of time.

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c) From 1938 on, the technical equipment of the Army SIS did not keep pace with the times. One also had an impression of stagnation in this respect. This deficiency became very noticeable with the departure of Colonel Karn. This man had been a most conscientious signal officer since 1926, and as chief of the Munich SIS Station he had been held in the highest esteem. He was the driving force of the Army SIS. His last assignment was as Army Signal Officer in Tunis where he was captured by the Americans. It has been clearly demonstrated again and again that the SIS must definitely have the best and newest signal equipment available. Furthermore, since it is always on the receiving end of radio transmissions, its equipment must either surpass, or at least be the equal of the enemy's in every regard.

## 2. The Navy SIS

The situation was no different with the intercept service of the Navy. Although the Navy SIS was already fully developed during the adolescence of the Army SIS, and served as a model for the Army, still it appeared completely paralyzed when war broke out. It is inconceivable that the Navy, which had been a leader in the field of radio technique, and ought to have retained this position in its own interests, should have fallen further and further behind the general development which the war occasioned. Proof of this might be that the newest phase of monitoring, that of radar intercept, had to be turned over to the Luftwaffe SIS by the Navy, because the latter had not provided specialists for this purpose. This can only be attributed to the technical clumsiness and mental indolence of the officers and engineers responsible.

## 3. The Luftwaffe SIS

The Luftwaffe SIS was indeed new, and likewise suffered from the inexperience

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of its radio technicians and the lack of signal training among its officers and non-commissioned officers. The effect of this was especially felt during the first two years of the war. The eagerness and ability of a few qualified men, plus energetic leadership, made up for these deficiencies relatively quickly. It came to a point where the Luftwaffe, the youngest of the three services, became much more stream-lined than the Army or Navy in every respect, administratively as well as with respect to technical innovations. This accounted, to a large extent, for the development and improvement of the Luftwaffe SIS. Following the decline of the German Air Force, the Luftwaffe SIS became the only reliable source of intelligence available to the Command, which could at least make possible the planning of offensive operations, and which could give such timely warnings of enemy air raids that the necessary active and passive defense measures could be taken.

It can be definitely stated that the Luftwaffe SIS, although the junior of the German Signal Intelligence Services, was the leader, both in operational activity and in technical advancement.

**TOP SECRET**